

## CONTENTS OF VOLUME 49

- Aalders, L. E. See Kender, W. J., 95.
- Alli-Khan, S. T. and Weibel, D. E. Heritability and interrelationships of some agronomic characters in grain sorghum, 217.
- Allan, J. R., McDonald, S. and Hall, N. W. Carbon dioxide pressurized aquatic herbicide sprayer, 639.
- Allen, Wayne R. Occurrence and seed transmission of tomato bushy stunt virus in apple, 797.
- Anderson, C. H. Control of winter annual forms of stinkweed and flaxweed, 87.
- Ashby, D. L. Controlled release of magnesium, zinc, boron and nitrogen from polyethylene capsules, 555.
- Ashford, R. See Coxworth, E. C. M., 427 and Lawrence, T., 321 and 435.
- Aubé, Claude. Effets du substrat sur la pathogénécité de quelques champignons du sol à l'égard de la luzerne, 737.
- Austenson, H. M. and Larter, E. N. Effect of direction of seeding on yields of barley and oats, 417.
- Baenziger, H. See Berkenkamp, B., 181.
- Baenziger, H. and Knowles, R. P. Agronomic significance of supernumerary chromosomes in controlled-cross progenies and experimental synthetics of crested wheatgrass, 173.
- Baker, R. J. Genotype-environment interactions in yield of wheat, 743.  
See also Kaufmann, M. L., 581 and Pesek, J., 773 and 803.
- Baldrige, D. E. See McNeal, F. H., 769.
- Bassett, I. J. and Crompton, C. W. Air-borne pollen surveys in eastern Canada, 247.
- Bédard, Roger. Influence de la grosseur du plant-mère et de l'ablation des boutons floraux sur la production de plants de cultivars de fraiser, 471.
- Bell, J. M. See Coxworth, E. C. M., 427.
- Bendelow, V. M. See Kaufmann, M. L., 581.
- Berg, M. A. See McNeal, F. H., 155 and 769.
- Berkenkamp, B. and Baenziger, H. The reaction of sweetclover varieties to brown root rot, 181.
- Bhar, D. S. See Hilton, R. J., 101.
- Bhar, D. S., Mason, G. F. and Hilton, R. J. Microscope trolley for rhizotron, 104.
- Bird, G. W. Depth of migration of *Meloidogyne incognita* (Nematodea) associated with greenhouse tomato and cucumber roots, 90.
- Bloom, J. R. See Lukezic, F. L., 189.
- Bowden, D. M. See Davis, W. E. P., 361 and McLean, Alastair, 351.
- Bowren, K. E., Cooke, D. A. and Downey, R. K. Yield of dry matter and nitrogen from tops and roots of sweetclover, alfalfa and red clover at five stages of growth, 61.
- Brawn, R. I. See Chong, Calvin, 513.
- Briggs, K. G. See Bushuk, W., 113.
- Briggs, K. G., Bushuk, W. and Shebeski, L. H. Variation in breadmaking quality of systematic controls in a wheat breeding nursery and its relationship to plant breeding procedures, 21.
- Brink, V. C. See Fletcher, K., 517.
- Bruehl, G. W., Millar, R. L. and Gunfer, Barry. Significance of antibiotic production by *Cephalosporium gramineum* to its saprophytic survival, 235.
- Buchannon, K. W. See Gill, C. C., 287.
- Bushuk, W. See Briggs, K. G., 21.
- Bushuk, W., Briggs, K. G. and Shebeski, L. H. Protein quantity and quality as factors in the evaluation of bread wheats, 113.
- Buttery, B. R. Effects of plant population and fertilizer on the growth and yield of soybeans, 659.  
Analysis of the growth of soybeans as affected by plant population and fertilizer, 675.
- Campbell, C. A. and Ferguson, W. S. Influence of air temperature, light intensity, soil moisture stress and soil aeration on moisture use by wheat, 129.
- Campbell, C. A., McBean, D. S. and Green, D. G. Influence of moisture stress, relative humidity and oxygen diffusion rate on seed set and yield of wheat, 29.
- Campbell, C. A., Pelton, W. L. and Nielsen, K. F. Influence of solar radiation and soil moisture on growth and yield of Chinook wheat, 685.
- Cannon, H. B. See Crowe, A. D., 529.
- Carder, A. C. Comparison of several different atmometer assemblies, 535.
- Chipman, E. W. See Lockhart, C. L., 265.
- Chong, Calvin and Brawn, R. I. Temperature comparisons of purple and dilute sun red anthocyanin color types in maize, 513.
- Christie, B. R. See Hunt, L. A., 597.
- Chubey, B. B. See Walkof, Charles, 453.

- Chubey, B. B. and Nylund, R. E. Surface browning of carrots, 421.
- Clark, K. W. See Dedio, W., 185.
- Cooke, D. A. See Bowren, K. E., 61.
- Corns, William G. See Rahman, Anisur, 521.
- Coxworth, E. C. M., Bell, J. M. and Ashford, R. Preliminary evaluation of Russian thistle, kochia, and garden atriplex as potential high protein content seed crops for semi-arid areas, 427.
- Craker, L. E., Gusta, L. V. and Weiser, C. J. Soluble proteins and cold hardness of two woody species, 279.
- Crompton, C. W. See Bassett, I. J., 247.
- Crowe, A. D. See Ross, R. G., 655 and Webster, D. H., 225.
- Crowe, A. D., Webster, D. H. and Cannon, H. B. Fruit size of apple as affected by sprays of Alar in the previous year, 529.
- Cunfer, Barry. See Bruehl, G. W., 235.
- Daubeney, Hugh A. Matsqui red raspberry, 227.  
Comparison of techniques for self pollination in red raspberry breeding programs, 371.  
Some variations in self fertility in the red raspberry, 511.  
See also Freeman, Jack A., 373.
- Davies, Eric. See Taper, C. D., 222.
- Davis, W. E. P. and Bowden, D. M. Effect of growth stage at harvest on the nutritive value of a grain corn grown for silage, 361.
- Daynard, T. B., Hunter, R. B., Tanner, J. W. and Kannenberg, L. W. An inexpensive space-integrating light meter for field crop research, 231.
- Dedio, W. and Clark, K. W. Effects of sample preparation methods on the isoflavones of red clover, 185.
- de Jong, E. and Otinkorang, E. S. Measurement of root distribution of irrigated tomatoes with the P-32 injection technique, 69.
- Downey, R. K. See Bowren, K. E., 61, Kondra, Z. P., 623 and Krzymanski, J., 313.
- Eady, F. and Eaton, G. W. Reduced chilling requirement of McFarlin cranberry buds, 637.
- Eaton, G. W. See Eady, F., 637.
- Eaves, C. A. See Forsyth, F. R., 567 and Lockhart, C. L., 265.
- Etter, Harold M. Growth, metabolic components and drought survival of lodgepole pine seedlings at three nitrate levels, 393.  
See also Hocking, D., 527.
- Evans, L. E., Martens, J. W., Green, G. J. and Hurd, E. A. Sources of resistance to wheat stem rust in East Africa, 649.
- Faris, D. G. and Guitard, A. A. Yield and primary culm yield components of two spring barley cultivars as influenced by temperature, daylength and growth stage, 701.
- Faris, D. G., Krahn, Lila and Guitard, A. A. Effect of photoperiod and temperature on seedling development of Olli and Vantage barley, 139.
- Ferguson, W. S. See Campbell, C. A., 129.
- Finlayson, D. G. Effectiveness and compatibility of fungicides, insecticides, and starter solutions applied jointly to cauliflower, 39.
- Fletcher, K. and Brink, V. C. Content of certain trace elements in range forages from south central British Columbia, 517.
- Forsyth, F. R. See Kender, W. J., 95.
- Forsyth, F. R., Eaves, C. A. and Lightfoot, H. J. Storage quality of McIntosh apples as affected by removal of ethylene from the storage atmosphere, 567.
- Frank, Richard. Herbicidal properties of substituted indans, 209.
- Franklin, E. W. See Lougheed, E. C., 386 and Smith, R. B., 805.
- Freeman, Jack A., Daubeney, Hugh A. and Stace-Smith, R. Increased pollen abortion caused by viruses in four red raspberry cultivars, 373.
- Freyman, S. See McLean, Alastair, 351.
- Fulkerson, R. S. See Hume, D. L., 477 and Gervais, P.
- Gasser, H. and Lachance, L. Effect of dates of cutting on dry matter production and chemical content of alfalfa and birdsfoot trefoil, 339.
- Gates, L. F. See Mortimore, C. G., 723.
- Gauthier, F. M. See Klinck, H. R., 228.
- \* Gill, C. C., Buchannon, K. W. and Westdal, P. H. Susceptibility to the yellow dwarf virus of barley varieties grown in Manitoba, and assessment of African varieties for tolerance, 287.
- Goetz, Harold. Root development and distribution in relation to soil physical conditions on four different native grassland sites fertilized with nitrogen at three different rates, 753.
- Grant, M. N. See Zuzens, D., 98.
- Green, D. G. See Campbell, C. A., 29.
- Green, G. J. See Evans, L. E., 649.
- Grover, R. and Hance, R. J. Adsorption of some herbicides by soil and roots, 378.
- Gubbels, G. H. Frost protection of crops by sprinkler irrigation, 715.

\* Gervais, P. See Gasser, H., 339.

- Guitard, A. A. See Faris, D. G., 139 and 701.  
Gusta, L. V. See Craker, L. E., 279.  
Hall, I. V. See Kender, W. J., 95.  
Hall, N. W. See Allan, J. R., 639.  
Hammill, Madeleine M. See Johnston, F. B., 403.  
Hance, R. J. See Grover, R., 378.  
Hanel, Donna J. See Troelsen, J. E., 645.  
Harper, A. M., Smith, A. D. and Harper, F. R. Low emergence of 'Prolific' spring rye caused by a *Pythium* species in soil, 531.  
Harper, F. R. See Harper, A. M., 531.  
Heinrichs, D. H. See Kilcher, M. R., 307.  
Heinrichs, D. H., Troelsen, J. E. and Warder, F. G. Variation of chemical constituents and morphological characters within and between alfalfa populations, 293.  
Hergert, G. B. A spaced-plant seeder for cereal plots, 642.  
Hilton, R. J. See Bhar, D. S., 104.  
Hilton, R. J., Bhar, D. S. and Mason, G. F. A rhizotron for *in situ* root growth studies, 101.  
Hocking, D. and Etter, H. M. Rapid germinability test for white spruce, 527.  
Hodgson, J. M. See McNeal, F. H., 155.  
Horricks, J. S. Influence of rape residue on cereal production, 632.  
Hume, D. J., Fulkerson, R. S. and Tossell, W. E. Seedling year management of alfalfa-grass mixtures established without a companion crop, 477.  
Hunt, L. A. and Christie, B. R. Determination of stomatal numbers, stomatal lengths, and dry weight increments of detached brome grass leaves, 597.  
Hunter, R. B. See Daynard, T. B., 231.  
Hurd, E. A. See Evans, L. E., 649 and Zuzens, D., 98.  
Jackson, H. O. See Weaver, G. M., 459.  
Johnston, A. See Smoliak, S., 635 and Wilson, D. B., 465.  
Johnston, A., Smoliak, S., Smith, A. D. and Lutwick, L. E. Seasonal precipitation, soil moisture, and yield of fertilized range vegetation, 123.  
Johnston, A., Smoliak, S. and Stringer, P. W. Viable seed populations in Alberta prairie topsoils, 75.  
Johnston, F. B., Spangelo, L. P., Watkins, R. and Hammill, Madeleine M. Compositional and fruit quality relationships in apple fruit and leaves, 403.  
Kaltsikes, P. J. Study of general adaptation in fall rye by means of regression analysis, 761.  
Kaltsikes, P. J. and Larter, E. N. Interaction of variety and environment in Triticale yield trials, 603.  
Kannenber, L. W. See Daynard, T. B., 231.  
Kaufmann, M. L. See Piening, L., 731.  
Kaufmann, M. L., Bendelow, V. M. and Baker, R. J. Interrelationships among agronomic and quality traits in a spring wheat cross, 581.  
Kender, W. J., Hall, I. V., Aalders, L. E. and Forsyth, F. R. Stimulation of rhizome and shoot growth of the lowbush blueberry by 2-chloroethanephosphonic acid, 95.  
Kerber, E. R. and Tipples, K. H. Effects of the D genome on milling and baking properties of wheat, 255.  
Kilcher, M. R. and Heinrichs, D. H. Influence of row spacing on yield and creeping root development of Rambler alfalfa in a semiarid region, 307.  
Klinck, H. R. and Gauthier, F. M. Yamaska oats, 228.  
Knowles, R. P. See Baenziger, H., 173.  
Kondra, Z. P. and Downey, R. K. Glucosinolate content of developing *Brassica napus* and *B. campestris* seed, 623.  
Korven, H. C. See Pelton, W. L., 615.  
Krahn, Lila. See Faris, D. G., 139.  
Krzymanski, J. and Downey, R. K. Inheritance of fatty acid composition in winter forms of rapeseed, *Brassica napus*, 313.  
Kwain, M. L. See Mowat, D. N., 499.  
Lachance, L. See Gasser, H., 339.  
Langille, Alan R. Effect of growth regulators in controlling "little tuber" condition, 800.  
Lapins, K. O. Tree growth habits in radiation-induced mutants of McIntosh apple, 483.  
Segregation of compact growth types in certain apple seedling progenies, 765.  
Larter, E. N. See Austenson, H. M., 417 and Kaltsikes, P. J., 603.  
Lawrence, T. and Ashford, R. Effect of stage and height of cutting on the dry matter yield and persistence of intermediate wheatgrass, brome grass, and reed canarygrass, 321.  
Effect of nitrogen fertilizer and clipping frequency on the dry matter yield and persistency of intermediate wheatgrass, 435.  
Lee, C. C. and Sosulski, F. W. Varietal differences in the uptakes of strontium-85 and calcium-45 by wheat, 93.  
Levine, Roslyn G. See Lukezic, F. L., 189.

- Lightfoot, H. J. See Forsyth, F. R., 567.
- Liu, Phyllis S. See Taper, C. D., 97.
- Lockhart, C. L., Eaves, C. A. and Chipman, E. W. Suppression of rots on four varieties of mature green tomatoes in controlled atmosphere storage, 265.
- Longley, R. P. See Ross, R. G., 655.
- Looney, Norman E. Importance of time and concentration of annual applications of succinic acid 2,2-dimethyl hydrazide (Alar) to pome fruits. I. McIntosh and Spartan apples, 489. Importance of time and concentration of annual applications of succinic acid 2,2-dimethyl hydrazide (Alar) to pome fruits. II. Anjou pears, 495.
- Regulation of sweet cherry maturity with succinic acid, 2,2-dimethyl hydrazide (Alar) and 2-chloroethanephosphonic acid (Ethrel), 625.
- Lopatecki, L. E. and Porritt, S. W. Storage rot of apples caused by *Pleospora herbarum*: a new record from Canada, 719.
- Lougheed, E. C. See Smith, R. B., 805.
- Lougheed, E. C., Franklin, E. W. and Smith, R. B. Ethylene analyses by automatic gas chromatography, 386.
- Lukezic, F. L., Bloom, J. R. and Levine, Roslyn G. Influence of top removal on the carbohydrate levels of alfalfa crowns and roots grown in a gnotobiotic environment, 189.
- Lutwick, L. E. See Johnston, A., 123.
- Lyall, L. H. See Nuttall, V. W., 524.
- Martens, J. W. See Evans, L. E., 649.
- Mason, G. F. See Bhar, D. S., 104 and Hilton, R. J., 101.
- Mason, J. L. Effect of cultivation and nitrogen on fruit quality, yield and color of McIntosh apples grown in irrigated grass sod cover crop, 149.
- Maurer, A. R., Ormrod, D. P. and Scott, Norma J. Effect of five soil water regimes on growth and composition of snap beans, 271.
- McBean, D. S. See Campbell, C. A., 29 and Zuzens, D., 98.
- McDonald, S. See Allan, J. R., 639.
- McLean, Alastair, Freyman, S., Miltimore, J. E. and Bowden, D. M. Evaluation of pinegrass as range forage, 351.
- McNeal, F. H., Berg, M. A. and Baldrige, D. E. Agronomic and quality characteristics of some white- and brown-glumed spring wheat populations, 769.
- McNeal, F. H., Hodgson, J. M. and Berg, M. A. Effects of dilute sprays of simazine on spring wheat, 155.
- Metcalfe, D. R. See Moseman, J. G., 447.
- Millar, R. L. See Bruehl, G. W., 235.
- Miller, Marcia J. See Ward, Gordon M., 53.
- Mills, J. T. A double cone seeder modified to apply fungicidal pellets above seed, 384.
- Mills, J. T. and Wallace, H. A. H. Effect of fungicides on *Cochliobolus sativus* and other fungi on barley seed in soil, 543.
- Miltimore, J. E. See McLean, Alastair, 351.
- Mohr, W. P. and Stein, M. Fine structure of fruit development in tomato, 549.
- Mortimore, C. G. and Gates, L. F. Effects of reducing interplant competition at different stages of growth on stalk rot and yield components of corn, 723.
- Moseman, J. G. and Metcalfe, D. R. Identification of resistance genes in barley by reactions to *Ustilago nuda*, 447.
- Moulton, F. See Voisey, Peter W., 107.
- Mowat, D. N., Kwain, M. L. and Winch, J. E. Lignification and *in vitro* cell wall digestibility of plant parts, 499.
- Nielsen, K. F. See Campbell, C. A., 685.
- Nuttall, V. W. and Lyall, L. H. Summertreat sweet corn, 524.
- Nylund, R. E. See Chubey, B. B., 421.
- Ormrod, D. P. See Maurer, A. R., 271.
- Otinkorang, E. S. See de Jong, E., 69.
- Pelton, W. L. Influence of low seeding rates on wheat yield in southwestern Saskatchewan, 607.
- See also Campbell, C. A., 685.
- Pelton, W. L. and Korven, H. C. Evapotranspiration estimates from atmometers and pans, 615.
- Pesek, J. and Baker, R. J. Comparison of tandem and index selection in the modified pedigree method of breeding self-pollinated species, 773.
- Desired improvement in relation to selection indices, 803.
- Piening, L. and Kaufmann, M. L. Comparison of the effects of net blotch and leaf removal on yield in barley, 731.
- Porritt, S. W. See Lopatecki, L. E., 719.
- Povilaitis, Bronius. See White, Frank H., 525.
- Rahman, Anisur and Corns, William G. Improvement of winter survival of spring-seeded winter rye and winter wheat by mowing in summer or fall, 521.

- Ross, R. G. See Stewart, D. K. R., 375.
- Ross, R. G., Crowe, A. D. and Longley, R. P. Performance of McIntosh apple trees sprayed with captan, dodine or pre-cover and cover sprays of dichlorone, 655.
- Ross, R. G. and Stewart, D. K. R. Cadmium residues in apple fruit and foliage following a cover spray of cadmium chloride, 49.
- Sallans, B. J. and Tinline, R. D. Consistency of reaction in wheat lines to common root rot, 197.
- Sampson, D. R. Use of a leaf color marker gene to detect apomixis in *Malus* species and observations on the variability of the apomictic seedlings, 409.
- Santerre, Jacquelin. La semence infectée, source d'inoculum de la tache argentée dans les sols affectés à la culture des pommes de terre, 83.
- Scott, K. R. Plant growth cabinet with hot gas bypass temperature control, 111.
- Scott, Norma J. See Maurer, A. R., 271.
- Shebeski, L. H. See Briggs, K. G., 21, Bushuk, W., 113 and Zuzens, D., 98.
- Smith, A. D. See Johnston, A., 123 and Harper, A. M., 531.
- Smith, J. Drew. Control of *Selenophoma* leaf spot in clones of *Bromus inermis* by burning crop debris, 381.
- Smith, R. B. See Loughheed, E. C., 386.
- Smith, R. B., Loughheed, E. C. and Franklin, E. W. Ethylene production as an index of maturity for apple fruits, 805.
- Smoliak, S. See Johnston, A., 75 and 123.
- Smoliak, S. and Johnston, A. Growth of grasses on three root media in the greenhouse, 635.
- Sosulski, F. W. See Lee, C. C., 93.
- Spangelo, L. P. See Johnston, F. B., 403.
- Stace-Smith, R. See Freeman, Jack A., 373.
- Stein, M. See Mohr, W. P., 549.
- Stefansson, B. R. and Storgaard, A. K. Correlations involving oil and fatty acids in rapeseed, 573.
- Stevenson, George A. An agronomic and taxonomic review of the genus *Melilotus* Mill., 1.
- Stewart, D. K. R. See Ross, R. G., 49.
- Stewart, D. K. R. and Ross, R. G. Nickel residues in apple fruit and foliage following a foliar spray of nickel chloride, 375.
- Storgaard, A. K. See Stefansson, B. R., 573.
- Stringer, P. W. See Johnston, A., 75.
- Stroud, F. D. See Weaver, G. M., 230.
- Svejda, Felicitas. Hybrid rugosa rose 'Martin Frobisher', 100.
- Tanner, J. W. See Daynard, T. B., 231.
- Taper, C. D. and Davies, Eric. Alteration of exogenously applied indoleacetic acid to non-indolic substances in apple leaf, 222.
- Taper, C. D. and Liu, Phyllis S. Sorbital occurrence in *Malus* leaves and fruits, 97.
- Thompson, L. S. See Willis, C. B., 505.
- Tinline, R. D. See Sallans, B. J., 197.
- Tipples, K. H. See Kerber, E. R., 255.
- Tonks, N. V. Stem lengths and bloom weights of greenhouse pot chrysanthemums treated with combinations of growth retardant and systemic insecticides, 219.
- Tosell, W. E. See Hume, D. J., 477.
- Townsend, L. R. Influence of form of nitrogen and pH on growth and nutrient levels in the leaves and roots of the lowbush blueberry, 333.
- Troelsen, J. E. See Heinrichs, D. H., 293.
- Troelsen, J. E. and Hanel, Donna J. Mechanical separation of leaves and stems of forage plants, 645.
- Twamley, B. E. Seedling vigor studies in Morshansk birdsfoot trefoil, 203.
- Vanden Born, W. H. Picloram residues and crop production, 628.
- van den Driessche, R. Measurement of frost hardiness in two-year-old Douglas fir seedlings, 159.
- Voisey, Peter W. and Moulton, F. Precise temperature control for a domestic freezer, 107.
- Walkof, Charles and Chubey, B. B. Relationship of chipping quality of potatoes to maturity and storage temperature, 453.
- Wallace, H. A. H. See Mills, J. T., 543.
- Walton, P. D. Inheritance of morphological characters associated with yield in spring wheat, 587.
- Ward, Gordon M. and Miller, Marcia J. Magnesium deficiency in greenhouse tomatoes, 53.
- Warder, F. G. See Heinrichs, D. H., 293.
- Watkins, R. See Johnston, F. B., 403.
- Weaver, G. M. and Jackson, H. O. Assessment of winterhardiness in peach by a liquid nitrogen system, 459.

- Weaver, G. M. and Stroud, F. D. Harbelle peach, 230.
- Webster, D. H. See Crowe, A. D., 529.
- Webster, D. H. and Crowe, A. D. Absorption of magnesium by apple leaves following application of dilute and concentrate sprays, 225.
- Welbel, D. E. See Ali-Khan, S. T., 217.
- Weiser, C. J. See Craker, L. E., 279.
- Westdal, P. H. Reaction of some oat varieties to aster yellows, 630.  
See also Gill, C. C., 287.
- White, Frank H. and Povilaitis, Bronius. Delhi 34, a new variety of bright tobacco tolerant to black root rot, 525.
- Willis, C. B. and Thompson, L. S. Effect of the root-lesion nematode on yield of four forage legumes under greenhouse conditions, 505.
- Wilson, D. B. Effects of seeding rate of orchardgrass on the balance of species in a herbage mixture, 783.
- Wilson, D. B. and Johnston, A. Comparison of seedling growth of rough fescue and tall fescue, 465.
- Winch, J. E. See Mowat, D. N., 499.
- Wort, D. J. Stimulation of vegetative and reproductive growth of bush bean plants by naphthenates, 791.
- Zuzens, D., Grant, M. N., McBean, D. S., Shebeski, L. H. and Hurd, E. A. Wind pollination of male sterile wheat, 98.



Vol. 49

lowing

tobacco

of four

herbage

and tall

nts by

Wind